Sources and Limitations of Data

CDC Surveillance Data

Much of the information in this document was based on cases of sexually transmitted diseases (STDs) reported to the Division of STD Prevention (DSTD), Centers for Disease Control and Prevention (CDC), by the STD control programs and health departments in the 50 states, the District of Columbia, selected cities, U.S. dependencies and possessions, and independent nations in free association with the United States. Included among the dependencies, possessions, and independent nations are Guam, Puerto Rico, and the Virgin Islands. These entities are identified as "outlying areas of the U.S." in selected tables and figures.

At present, STD data are submitted to CDC on a variety of hardcopy summary reports (monthly, quarterly, and annually) and electronically either in summary or individual case-listed format via the National Electronic Telecommunications System for Surveillance (NETSS) — the system that provides notifiable disease information that is published in the *Morbidity and Mortality Weekly Report*, or *MMWR*. DSTD is currently working with project areas on converting from hardcopy reporting of summary data to electronic submission of line-listed (i.e., case-specific) data through NETSS. As of 1998, 29 states have been notified to discontinue hardcopy reporting and are sending primary and secondary syphilis, chlamydia and gonorrhea as line-listed extended, electronic data. See Figures A1-A3 in this **Appendix** for type of reporting by state and disease. "Summary" refers to aggregate electronic data. "Case" refers to case-specific, 60-byte core records. "Extended case" refers to case-specific, 60-byte core records plus STD-specific information beyond the core 60-byte record. "Discontinue hardcopy" refers to those states that sent consistent, quality case-extended data and were notified to discontinue hardcopy reporting.

The data used in this report are based on a combination of aggregated NETSS data and summary hardcopy reports. Monthly reports included summary data for syphilis by county and state. Quarterly reports included summary data for syphilis, gonorrhea, chlamydia, and other STDs by gender and source of report (STD clinic or non-STD clinic) for the 50 states, 64 large cities (most with a population over 200,000 in 1980), and outlying areas of the United States. Annual reports included summary data for P&S syphilis, gonorrhea, and chlamydia by age, race, and gender for the 50 states and six large cities. In addition, data on antimicrobial susceptibility in *Neisseria gonorrhoeae* were collected through the Gonococcal Isolate Surveillance Project (GISP), a sentinel system of 28 STD clinics and five regional laboratories located throughout the United States. Provisional data on syphilis, gonorrhea, and chlamydia reported to CDC weekly by states for inclusion in the *Morbidity and Mortality Weekly Report* were not included in this document.

Areas differ in their ability to resolve differences in total cases derived from hardcopy monthly, quarterly, and annual reports (as well as electronically submitted case-listed data). Thus, depending on the database used, there may be discrepancies in total cases in the tables and figures. In most instances, these discrepancies are less than 5% of total reported cases and have minimal impact on national total cases and rates. However, for a specific area, the discrepancies may be larger.

Reports and corrections sent to CDC on hardcopy forms through June 15, 1999 and for NETSS electronic data through July 19, 1999 have been included. Hardcopy data received after these dates will appear in subsequent issues. The data in the tables and figures in this document supersede those in all earlier publications.

Population Denominators and Rate Calculations

Crude incidence rates (new cases/population) were calculated on an annual basis per 100,000 population. For the United States, rates were calculated using Bureau of the Census population estimates for 1981 through 1989 (Bureau of the Census; *United States Population Estimates by Age, Sex and Race: 1980-1989* [Series P-25, No. 1045]; Washington: US Government Printing Office, 1990; and *United States Population Estimates by Age, Sex and Race: 1989* [Series P-25, No. 1057]; Washington: US Government Printing Office, 1990). Rates for states and counties were calculated using published intercensal estimates based on Bureau of the Census population estimates for 1980-1989 (Irwin R; *1980-1989 Intercensal Population Estimates by Race, Sex, and Age*; Alexandria, [VA]: Demo-Detail, 1992; machine-readable data file). Rates for 1990 were calculated using population data from the 1990 census (*Census of Population and Housing, 1990: Summary Tape File 1 (All States)* [machine-readable file]; Washington: Bureau of the Census, 1991), which included information on area (county, state), age (5-year age groups), race (White, Black, Asian/Pacific Islander, American Indian/Alaska Native) and ethnicity (Hispanic). Rates for 1991-1997 were updated from previous issues of this report using postcensal population estimates based on the Bureau of the Census data (U.S. Bureau of the Census; *1991-1997 Estimates of the Population of Counties by Age, Sex and Race/Hispanic Origin: 1990 to 1997;* machine-readable data files). Rates for 1998 use population estimates for 1997.

Many cities do not have a separate health jurisdiction that collects and reports cases of STDs. For these cities, case numbers and crude incidence rates are equal to those of the county or counties in which the city is located. For the remaining cities, incidence rates were calculated by using population estimates based on the Bureau of the Census (Irwin R, see above) and a marketing survey (Market Statistics, Inc; *Sales and Marketing Management*; New York: Bill Communications, Inc, August 1989).

1980-1988 population estimates for areas outside the United States were obtained from the Bureau of the Census (Bureau of the Census; population estimates for Puerto Rico and the outlying areas: 1980 to 1988; *Current Population Reports* [Series P-25, No. 1049]; Washington: US Government Printing Office, 1989). After 1988, population estimates for outlying areas were obtained directly from the health departments in these areas. For Puerto Rico and Virgin Islands, current population estimates through 1997 were obtained from their area's data centers. Rates for 1998 were based on the 1997 population estimates. Population estimates for Guam were updated through 1995 and were used to calculate rates for 1995-1998.

The percentage of cases for which race/ethnicity and age were unknown or unspecified differed considerably by year and area. States were excluded from analysis if race/ethnicity and age were not reported for the majority of cases. Otherwise, if race/ethnicity or age was unknown or unspecified, cases were distributed according to the distribution of cases for which these data were available. In this edition, 1981 through 1998 age- and race-specific rates (for chlamydia (1996-98 only), gonorrhea, and syphilis in the **National Profile**, **Special Focus Profiles** and **Detailed Tables**) are calculated from estimates based on this redistribution.

Rates of congenital syphilis for 1989-1998 were calculated using live births from the National Center for Health Statistics (NCHS) (Vital Statistics: Natality Tapes 1989-1996 or Vital Statistics Reports, United States 1998, Vol. 46 No.12—Natality). Race-specific rates for 1996-1998 were calculated using live births for 1996. Rates before 1989 were calculated using published live birth data (NCHS; Vital Statistics Report, United States, 1988 [Vol.1—Natality]).

Case Definitions and Reporting Practices

Although most areas generally adhere to the case definitions for STDs found in *Case Definitions for Infectious Conditions Under Public Health Surveillance (MMWR* 1997;46(RR-10):1-56), there are differences between individual areas in case definitions as well as in the policies and systems for collecting surveillance data. Thus, comparisons of case numbers and rates between areas should be interpreted with caution. However, since case definitions and surveillance activities within a given area remain relatively stable, trends should be minimally affected. In many areas, reporting from publicly supported institutions (e.g., STD clinics) was more complete than from other sources (e.g., private practitioners). Thus, the trends may not be representative of all segments of the population. Military cases are not reported as a separate category.

Reporting of Congenital Syphilis Cases

In 1988, a new surveillance case definition for congenital syphilis was introduced. The new case definition has greater sensitivity than the former definition. In addition, many areas greatly enhanced active case finding for congenital syphilis during this time. For these reasons, the number of reported cases increased dramatically during 1989-1991. As is true of any change, a period of transition during which trends cannot be clearly interpreted has resulted; however, all reporting areas had implemented the new case definition for reporting all cases of congenital syphilis after January 1, 1992. Therefore, the reliability of trends is expected to have stabilized after this date.

In addition to changing the case definition, CDC introduced a new data collection form (CDC 73.126) in 1990. Beginning with 1995, the data collected on this form are used for reporting congenital syphilis reported cases and associated rates. This form collects individual case information which allows more thorough analysis of cases. For the purposes of these analyses if either the race or ethnicity question was answered, the case was included. For example, if "white" race was marked, but ethnicity was left blank, the individual was counted as "non-Hispanic white".

Congenital syphilis cases have been reported by state and city of residence of the mother for 1995-1998.

Reporting of Syphilis Cases

Cases of unknown duration have been counted with late and late latent syphilis.

Reporting of Gonorrhea Cases

In 1994, Georgia reported gonorrhea cases to CDC for only part of a year. Therefore, Georgia cases and population were excluded from gonorrhea figures and tables for 1994. The city of Atlanta was also excluded from city gonorrhea figures and tables for 1994.

For more details on GISP gonorrhea cases, refer to the following annual publication: Division of STD Prevention. *Sexually Transmitted Disease Surveillance 1997 Supplement: Gonococcal Isolate Surveillance Project (GISP) Annual Report 1997*, U.S. Department of Health and Human Services, Public Health Service. Atlanta: Centers for Disease Control and Prevention, October 1998.

Reporting of Chlamydia Cases

In 1998, New York was the only state that did not yet have laws or policies for uniform reporting of *Chlamydia trachomatis* cases. Chlamydia cases for New York were exclusively based on cases reported by New York City (i.e., no cases were reported outside of New York City). When calculating U.S. total rates, the population denominators were adjusted to include only the New York City population. Trends in many areas were more representative of increases in reporting of cases rather than actual trends in disease. Cases and rates of chlamydia reported in gender-specific tables are underestimated due to some reported cases with unknown gender. Despite problems with under-reporting, it is important to publish the data to emphasize the large numbers of cases of chlamydia being detected in the United States. As areas develop chlamydia prevention and control programs, including improved surveillance systems to monitor trends, the data should improve and become more representative of true trends in disease.

Chlamydia test positivity was calculated by dividing the number of women testing positive for chlamydia (numerator) by the total number of women tested for chlamydia (denominator) and was expressed as a percentage. While not common, the denominator may contain multiple tests from the same individual if that person was tested more than once during a year. Various chlamydia test methods were used and no adjustments of test positivity were made based on test type. Chlamydia testing data for region- and state-specific figures were published with permission from the HHS Regional Infertility Prevention Programs, selected state STD prevention programs, and the Job Corps, U.S. Department of Labor. Health and Human Services (HHS) regions are as follows: Region I=Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont; Region II=New Jersey, New York, Puerto Rico, and U.S. Virgin Islands; Region III=Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia; Region IV=Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee; Region V=Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin; Region VI=Arkansas, Louisiana, New Mexico, Oklahoma, and Texas; Region VII=Iowa, Kansas, Missouri, and Nebraska; Region VIII=Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming; Region IX=Arizona, California, Guam, Hawaii, and Nevada; and Region X=Alaska, Idaho, Oregon, and Washington.

For more details on chlamydia prevalence, refer to the following annual publication: Division of STD Prevention. *Sexually Transmitted Disease Surveillance 1997 Supplement: Chlamydia Prevalence Monitoring Project Annual Report 1997*, U.S. Department of Health and Human Services, Public Health Service. Atlanta: Centers for Disease Control and Prevention.

Other Data Sources

The information on the number of initial visits to private physicians' offices for sexually transmitted diseases was based on analysis of data from the National Disease and Therapeutic Index (NDTI) (machine-readable files or summary statistics for years 1966-1998). For more information on this database, contact IMS America, Ltd., 660 West Germantown Pike, Plymouth Meeting, PA 19462; Telephone: (610) 834-5000.

The information on patients hospitalized for pelvic inflammatory disease or ectopic pregnancy was based on analysis of data from the National Hospital Discharge Survey (machine-readable files for years 1980-1997), an ongoing nationwide sample survey of short-stay hospitals in the United States, conducted by the National Center for Health Statistics. For more information, see Graves EJ; 1988 Summary: National Hospital Discharge Survey; Advance data No. 185; Hyattsville (MD): National Center for Health Statistics, 1990. The National Hospital Ambulatory Medical Care Survey (NHAMCS-ER) (machine-readable files for 1995-1997) was used to obtain estimates of the number of emergency room visits for pelvic inflammatory disease among women ages 15 to 44. Data on HSV-2 seroprevalence among the non-institutionalized U.S. population were obtained from the National Health and Nutrition Examination Survey (NHANES). The estimates generated using these data sources (NHDS, NHAMCS, and NHANES) are based on statistical surveys and therefore have sampling variability associated with the estimates.

Healthy People Year 2000 Revisions

In 1995, the Healthy People year 2000 objectives were revised[1]. The year 2000 objectives for the diseases in this report were revised as follows: primary and secondary syphilis—10 per 100,000 population to 4; congenital syphilis—50 per 100,000 livebirths to 40; and gonorrhea —225 per 100,000 population to 100.

Urban Rural Categorization Method

Aggregate county-specific case report data on P&S syphilis are submitted monthly by state health departments (via Form CDC-73. 998) to the Centers for Disease Control and Prevention (CDC). These P&S syphilis case report data were summarized using urban-to-rural continuum codes for metro and nonmetro counties that were developed by the U.S. Department of Agriculture (USDA)[2] and incorporated the Office of Management and Budget's (OMB) official metro status based on the results of the 1990 Population Census[3]. The 1993 urban-rural continuum codes form a classification scheme that distinguishes metropolitan counties by size, and nonmetropolitan counties by degree of urbanization and proximity to metro areas. The standard Office of Management and Budget (OMB) metro and nonmetro categories have been subdivided into four metro and six nonmetro categories[2]. The county-specific USDA codes used to place counties into urban-to-rural categories are as follows:

U.S. Department of Agriculture Urban-to-Rural Continuum Codes for Metro and Nonmetro Counties (as of June 1993)

Code	Metro Counties:
0	Central counties of metro areas of 1 million population or more
1	Fringe counties of metro areas of 1 million population or more
2	Counties in metro areas of 250,000 to 1 million population
3	Counties in metro areas of fewer than 250,000 population
	Nonmetro Counties:
4	Urban population of 20,000 or more, adjacent to a metro area
5	Urban population of 20,000 or more, not adjacent to a metro area
6	Urban population of 2,500 to 19,999, adjacent to a metro area
7	Urban population of 2,500 to 19,999, not adjacent to a metro area
8	Completely rural or fewer than 2,500 urban population, adjacent to a metro area
9	Completely rural or fewer than 2,500 urban population, not adjacent to a metro area

An aggregate *urban* category (codes 0, 2, and 3) was defined to include central counties with at least one million or more persons (code 0) and non-fringe counties in metro areas (codes 2 and 3). Fringe metro counties (code 1) were combined with the non-metro counties adjacent to a metro area and with an urban population of at least 2,500 population (codes 4 and 6) to form an aggregate category designated as *peri-urban* (codes 1, 4, and 6). An aggregate *peri-rural* category was defined to include nonmetro counties not adjacent to a metro area and with an urban population of at least 2,500 population (codes 5 and 7), and an aggregate *rural* (codes 8 and 9) category was defined to include nonmetro counties that were completely rural or had fewer than 2,500 urban population.

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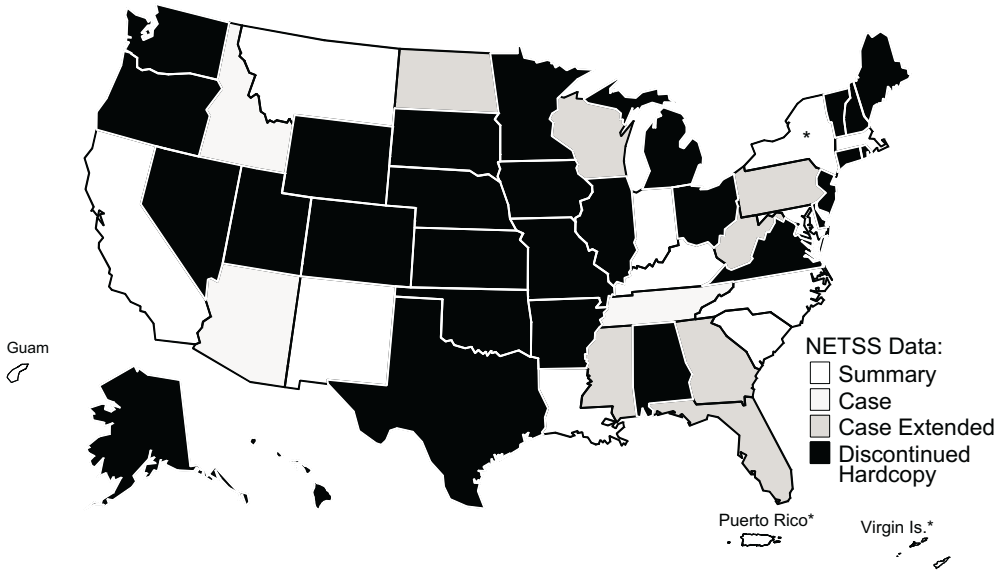
[1]Department of Health and Human Services. Healthy People 2000: Midcourse Review and 1995 Revisions. U.S. Department of Health and Human Services, Public Health Service. U.S. Government Printing Office, Washington, D.C., 1995.

[2]Rural-Urban Continuum Codes for Metro and Nonmetro Counties, 1993. Butler MA, Beal CL, Agriculture and Rural Economy Division, Economic Research Service, U.S. Department of Agriculture. Staff Report No. AGES 9425, September 1994.

[3]Federal Register, Part IV, Office of Management and Budget, Revised Standards for Defining Metropolitan Areas in the 1990's. Vol .55 No.62, Friday March 30, 1990.

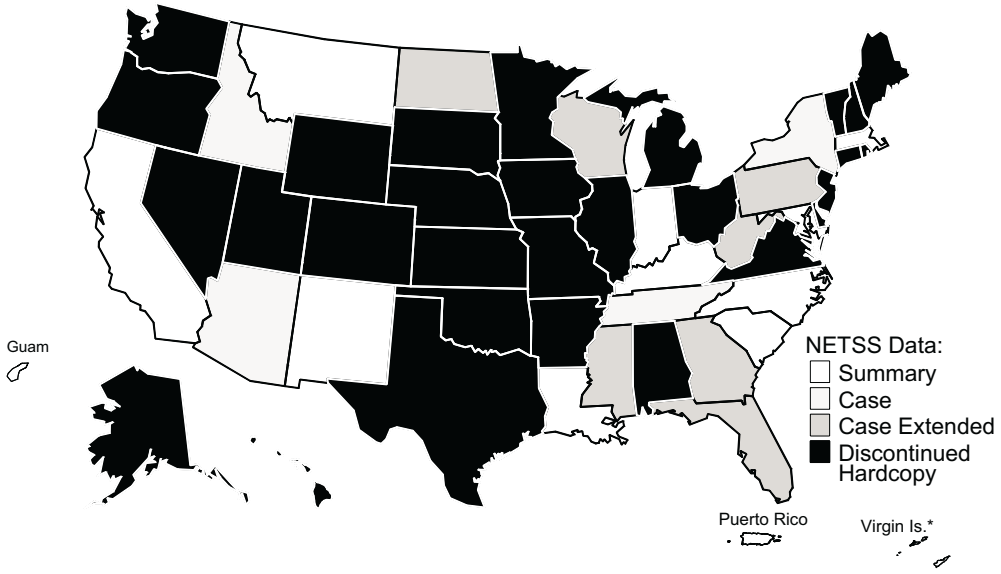
Figure A1. Chlamydia — National electronic telecommunications surveillance system (NETSS) transmission status by state, 1998



*Upstate New York (New York City reports summary chlamydia records to NETSS), Washington, DC, Puerto Rico and Virgin Islands did not report.

Note: Unless noted, large city projects transmit records in the same format as states. San Francisco and Los Angeles, CA projects report case extended chlamydia records to NETSS.

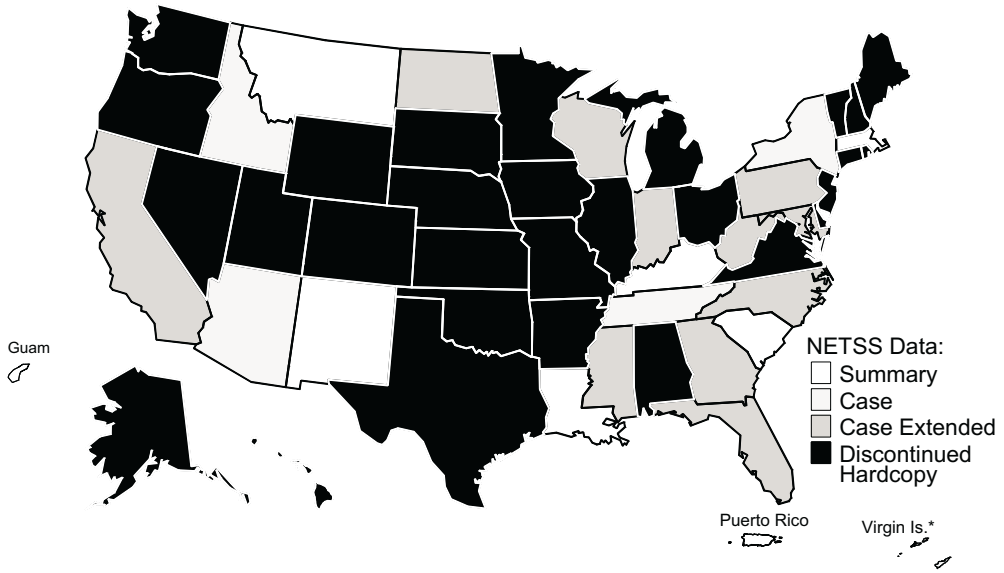
Figure A2. Gonorrhea — National electronic telecommunications surveillance system (NETSS) transmission status by state, 1998



* Virgin Islands did not report.

Note: Unless noted, large city projects transmit records in the same format as states. San Francisco and Los Angeles, CA projects report case extended gonorrhea records to NETSS. New York City and Washington, DC projects report summary gonorrhea records to NETSS.

Figure A3. Primary and secondary syphilis — National electronic telecommunications surveillance system (NETSS) transmission status by state, 1998



*Virgin Islands did not report.

Note: Large city projects transmit records in the same format as states.